

Treatment Delays in IBD: A Multi-Site Real-World Analysis Across UC Health

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Background

- Inflammatory bowel disease (IBD), including ulcerative colitis (UC) and Crohn's Disease (CD), affects an estimated 3 million adults in the United States¹.
- Biologic therapies, including monoclonal antibodies, such as anti-TNF agents (infliximab, adalimumab), anti-integrins (vedolizumab), and IL-12/23 inhibitors (ustekinumab, risankizumab) are commonly prescribed for the management of moderate to severe IBD².
- The implementation of biologic therapies face various challenges, including delays in the time from prescription to administration³.
- The delay may result in reduced treatment response, increased healthcare utilization, and decreased quality of life in patients⁴⁻⁶.
- Previous small, single-center cohort studies reported route of administration, race, insurance, travel time to location, biologic choice, IBD type, and baseline severity to impact the delay^{3, 7, 8}.
- However, there is no comprehensive analysis in a large, multi-center cohort.

Result

- A total of 19,099 prescriptions were recorded among 5,866 unique patients
- 13,508 (71%) prescriptions had a successfully linked administration event
- Data was right skewed with mean delay of 17.7 days (SD = 27.3), and a median of 7 days.
- A combined wait time of 656 years was recorded.

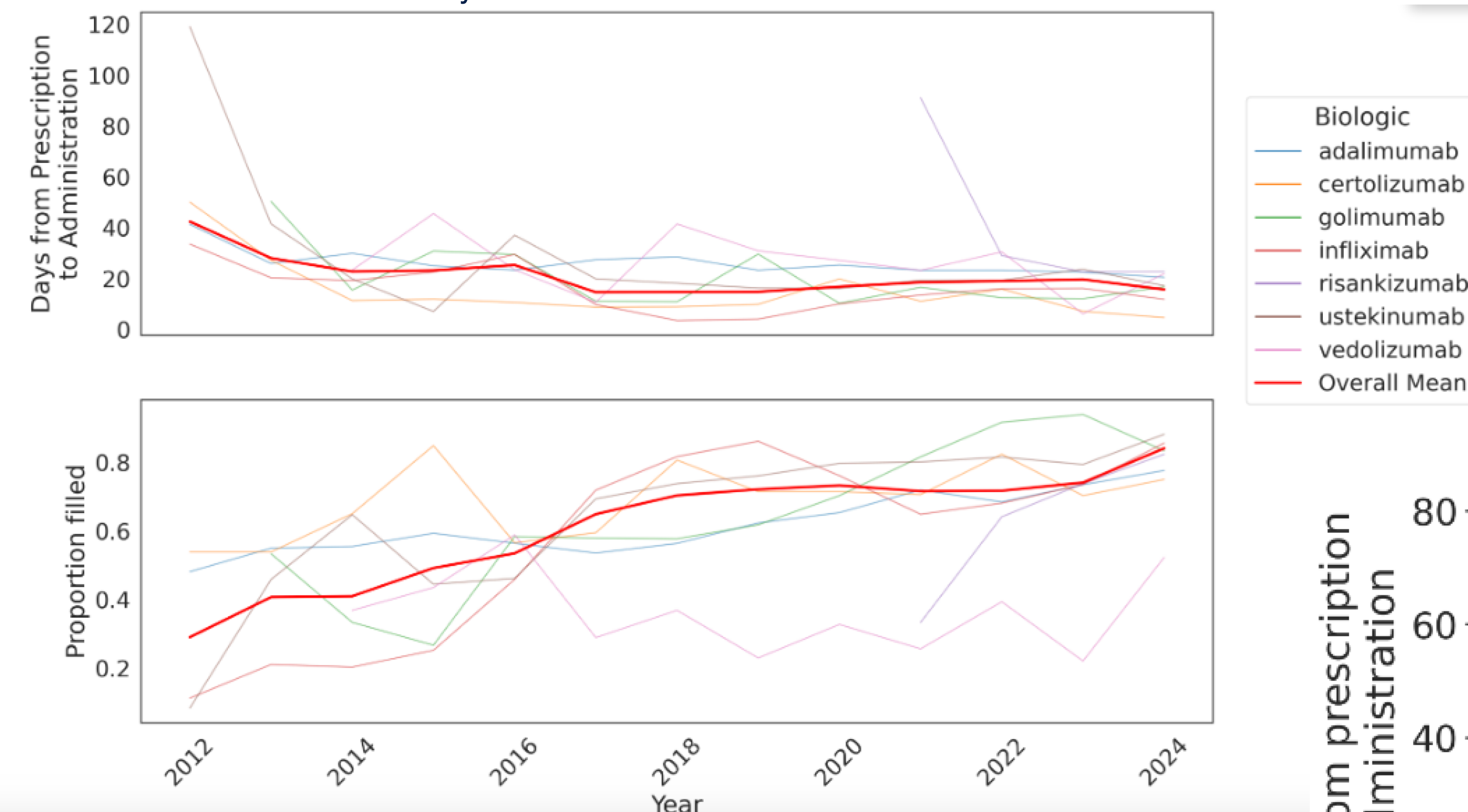


Figure 1. Delay time stay stable since 2016, and fill rate increases throughout the years

Feature	Value	Percentage/Median (IQR)	Count	Feature	Value	Percentage/Median (IQR)	Count
Biologic	infliximab	38.3%	7315	Race	American Indian/Alaska Native	0.4%	76
	vedolizumab	2.9%	547		Asian	5.7%	1053
	ustekinumab	27.6%	5274		Black/African American	5.4%	1002
	risankizumab	5.1%	972		Native Hawaiian/Other Pacific Islander	0.3%	53
	golimumab	1.6%	304		White	70.5%	12959
	certolizumab	1.6%	311		Other Race	10.5%	1927
	adalimumab	22.8%	4359		Unknown	7.2%	1316
Location	UC_0	28.7%	5472	Insurance	private	67.7%	11663
	UC_1	7.2%	1371		medicaid	18.9%	3257
	UC_2	25.0%	4779		medicare	9.7%	1671
	UC_3	19.8%	3781		medicare advantage	1.7%	287
	UC_4	19.2%	3673		veterans	2.0%	343
Sex	Female	47.3%	9019	ADI	4.0 (2.0 - 7.0)	N/A	
	Male	52.7%	10062	Year	2021 (2019 - 2023)	N/A	

Table 1. Baseline demographic and clinical characteristics of the cohort for all prescriptions

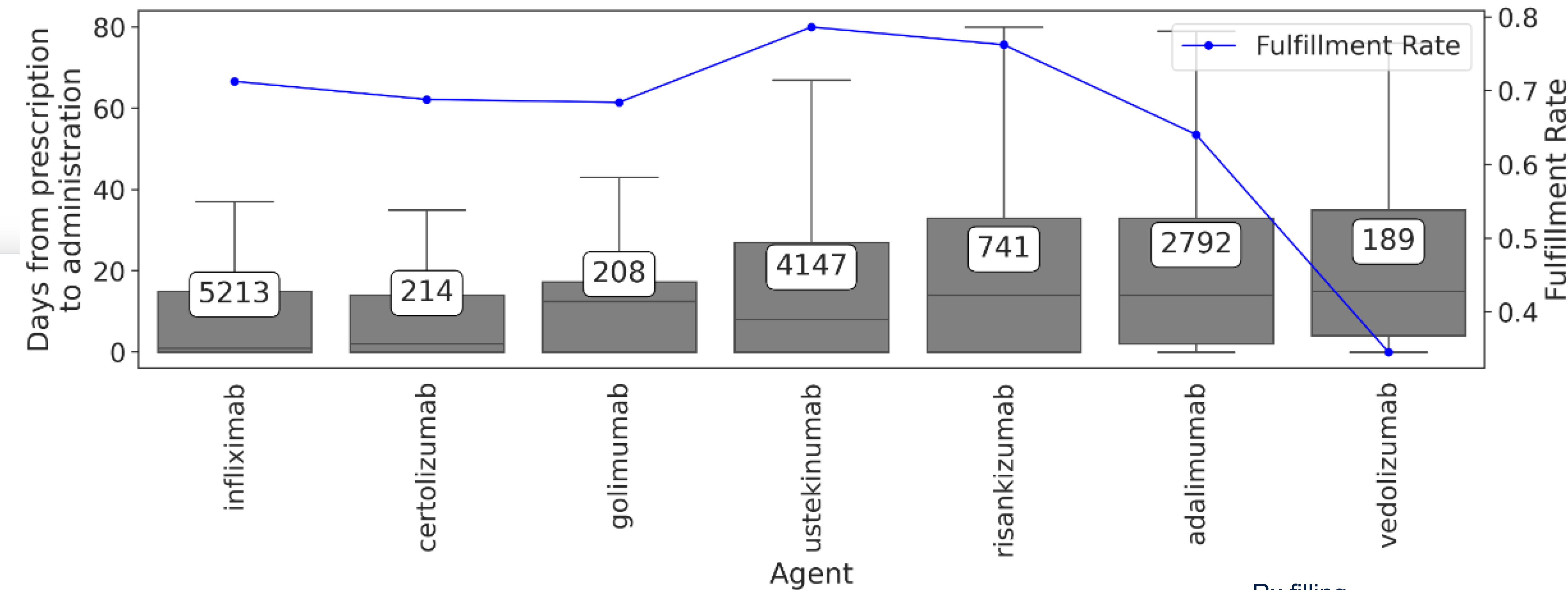


Figure 2 (above). Different biologics show distinct filling and delay profile

- Infliximab and certolizumab exhibits the lowest delay (mean under 14 days)
- Vedolizumab exhibits the most delay (mean > 25 days) and the lowest fill rate

Figure 3 (right). Medicare advantage and first biologic prescription decrease likelihood of filling.

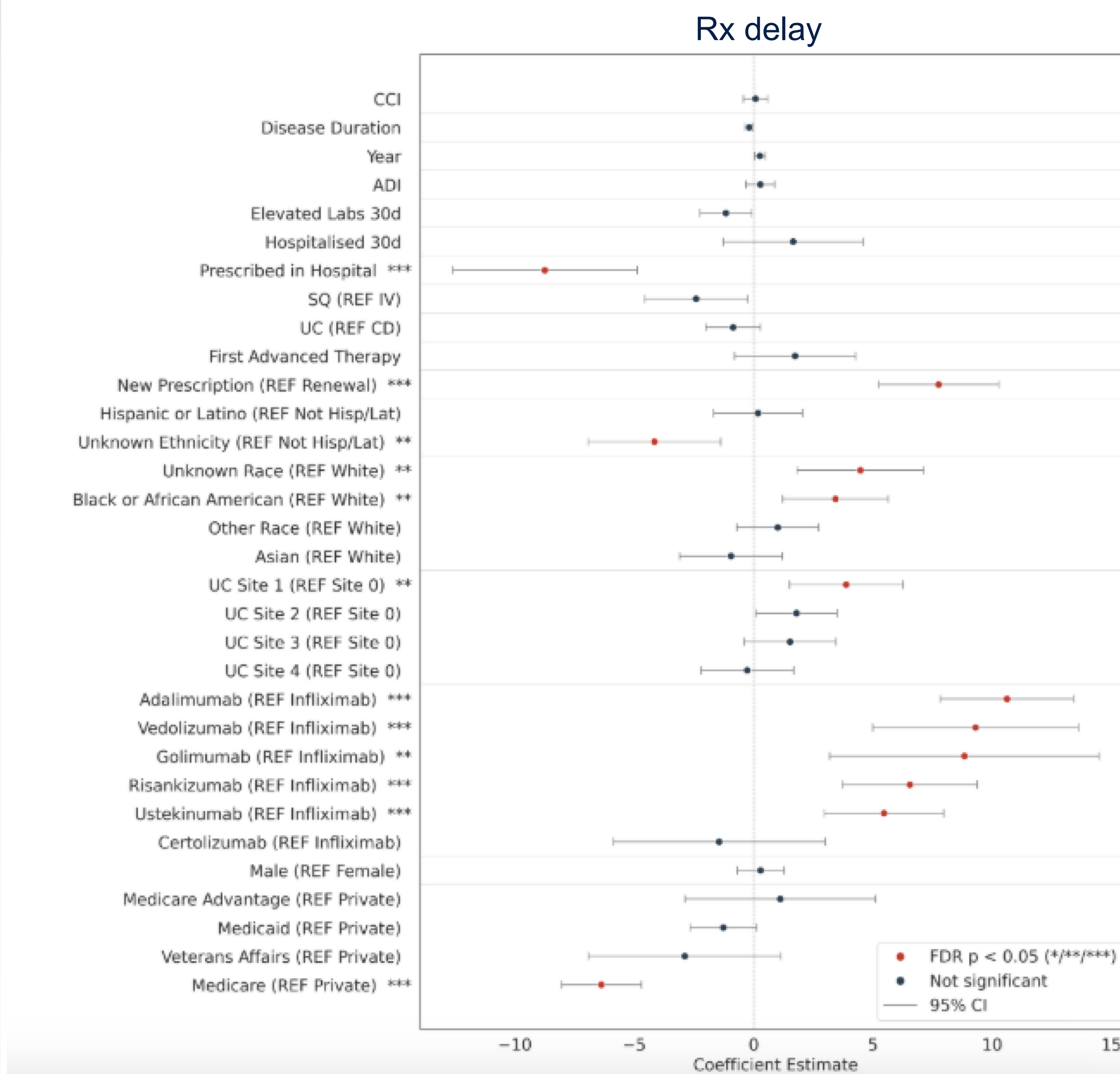
The figure denotes each covariates' effect on prescription fill in logistic regression

Figure 4 (left). Renewals, in-hospital prescriptions and medicare insurance decrease delays.

The figure denotes each covariates' effect on prescription delay (in days) in linear regression

Methods

- We leveraged the University of California Data Driven Decision Platform (UCDDP) that includes deidentified electronic healthcare record across six University of California healthcare systems.
- Inclusion criteria:
 - Adults ≥ 18 years old with diagnosis of either UC or CD
 - At least one prescription of biologic agent between 2012 to 2024
- Exclusion criteria:
 - Diagnosis of other autoimmune disease.
 - Having follow-up of less than 180 days
- The day of prescription served as the index date for delay analysis.
- Prescription without a matching administration within 180 days were considered as unfilled.
- We examined trends over time for delays and probability of filling.
- A multivariate logistic regression for filling status, and a multivariate linear regression for prescription delay was performed to discover risk factors.
- False Discover Rate (FDR) correction was implemented for multiple testing correction.



Conclusion

This study highlights real-world inefficiencies in the timely delivery of biologic therapy to patients with IBD. Addressing the multifactorial barriers to timely initiation, particularly those related to drug characteristics, institutional practices, and insurance design, will be essential to improving equitable care delivery and patient outcomes in IBD.

Reference

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